

Mental Health for a Lifetime

Research for the Mental Health Needs of Older Americans

*Report of the National Advisory Mental Health Council's
Workgroup on Aging Research*



U.S. DEPARTMENT OF HEALTH AND HUMAN SERVICES NATIONAL INSTITUTES OF HEALTH



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CHAPTER I THE AGING RESEARCH WORKGROUP

INTRODUCTION

The impetus for “Mental Health for a Lifetime” derives from the well-known demographics on aging America. The number of Americans age 65 years and older is growing rapidly, and is projected to reach 70.3 million by 2030, or 20 percent of the U.S. population.¹ In addition, older Americans include an increasing percentage of racial and ethnic minorities,² which also presents opportunities for research along with new challenges to health care and social service systems. At the same time, older Americans expect to lead rich lives that include a full range of work, recreational, and social activities, and that, in turn, depend on older Americans remaining mentally as well as physically healthy. Recognizing these demographic trends, this report charts a path for the National Institute of Mental Health (NIMH) to develop research that will promote mental health for the growing proportion of older Americans. In addition, this report identifies research required to understand the needs of individuals living with mental illness as they move toward later life.

Fostering an understanding of healthy aging is essential to better care and better living for older Americans. All too often, for example, older individuals and their doctors accept depression as a normal part of aging when it is not.³ This belief is especially unfortunate for those who first develop depression late in life, when such resignation can prevent the individual from receiving effective care.⁴ Untreated depression, after all, is a deadly disease, and the impact of that is seen in the fact that older Americans are disproportionately likely to die by suicide. Representing only 13 percent of the U.S. population, individuals age 65 and older accounted for 18 percent of all suicide deaths in 2000.⁵ Of the nearly 35 million Americans age 65 years and older, an estimated 2 million have a depressive illness and another 5 million may have depressive symptoms that fall short of meeting full diagnostic criteria for a disorder.⁶ In short, depression among older Americans should be screened for and treated no differently than other illnesses that become prevalent later in life, such as diabetes or high-blood pressure.

One of the goals of NIMH’s aging research portfolio is to fund research that addresses the barriers that prevent older Americans from receiving effective treatment for

¹ U.S. Census Bureau. National Population Projections, available at <http://www.census.gov/population/www/projections/natsum-T3.html>.

² Ibid

³ Lebowitz B.D., Pearson J.L., Schneider L.S., Reynolds C.F. III, Alexopoulos G.S., Bruce M.L., Conwell Y., Katz I.R., Meyers B.S., Morrison M.F., Mossey J., Niederehe G., and Parmelee P. Diagnosis and Treatment of Depression in Late Life. Consensus Statement Update. *Journal of the American Medical Association*, 278(14):1186-1190, 1997.

⁴ Department of Health and Human Services, Public Health Service, National Institutes of Health, National Institute of Mental Health. *Older Adults: Depression and Suicide Facts*. NIH Publication No. 03-4593, revised May 2003, available at <http://www.nimh.nih.gov/publicat/elderlydepsuicide.cfm#8>.

⁵ Office of Statistics and Programming, NCIPC, CDC. Web-based Injury Statistics Query and Reporting System (WISQARS™), available at <http://www.cdc.gov/ncipc/wisqars/default.htm>.

⁶ Conwell Y. “Suicide in Later Life: A Review and Recommendations for Prevention.” *Suicide and Life Threatening Behavior*, 31(Suppl): 32-47, 2001.

depression and other mental illnesses. Another is to develop a greater understanding of the basic processes underlying these illnesses and to develop more effective treatment and preventive interventions. Effective treatment of mental disorders, while beneficial in its own right, also can lower the burden and costs of other medical conditions, such as cardiovascular disease and diabetes, which occur frequently in aging populations. Studies of health care systems indicate that the presence of depression raises the costs of overall yearly health care by 50 percent or more, and that the magnitude of the added expense grows in proportion to the number of chronic medical conditions that are present.⁷

Given the increasing urgency to address the mental health needs of older citizens, Dr. Thomas Insel, Director, NIMH, and the National Advisory Mental Health Council (NAMHC) (see Appendix A for membership) convened the Aging Research Workgroup to assess the Institute's extramural aging research and training portfolio and to identify strategies for developing: (1) promising research areas in mental health and aging; (2) researchers who are skilled in aging issues; (3) NIMH program staff expertise in aging research; and (4) collaborations with other stakeholders. The Workgroup was composed of NAMHC members (see Appendix B for the Workgroup roster) whose expertise included minority health, social and behavioral science, HIV/AIDS, genetics, epidemiology, public health, health care management, health policy, and geriatric mental health. Council member Dr. Charles Reynolds, III, was chosen to chair the Workgroup. In addition, the Workgroup was supported by members of the NIMH Aging Research Consortium (see Appendix C) and by additional staff at NIMH and the National Institute on Aging (NIA) listed in Appendix D.

⁷ Unutzer, J., Patrick, D.L., Simon, G., Grembowski, D., Walker, E., Rutter, C., and Katon, W. "Depressive Symptoms and the Cost of Health Services in HMO Patients Aged 65 years and Older. A 4-year Prospective Study." *Journal of the American Medical Association*, 277(20):1618-1623, 1997.

CHAPTER II

THE WORKGROUP'S PROCESS AND FINDINGS

WORKGROUP COMPOSITION AND CHARGE

The Council's Aging Research Workgroup has reviewed the Institute's current aging research portfolio, the status of the field, and the opportunities in science for addressing this urgent public health need both within NIMH and at other Federal or private agencies. The following pages in this chapter describe the Workgroup's process and findings. These, in turn, guided the Workgroup in developing its final recommendations (see Chapter III) regarding promising research areas in mental health and aging, the need for researchers skilled in aging issues, an appropriate programmatic structure at NIMH to foster the development of the field, and areas of collaboration with other stakeholders.

WORKGROUP PROCESS

The Workgroup met via conference calls and in-person meetings from March through September 2003. To enhance its perspective on ongoing Institute-supported research and opportunities for expanded research, the Workgroup received a number of briefings and reviewed an extensive array of reports.

○ BRIEFINGS

1. The NIMH Aging Research Consortium provided an overview on the role of the Consortium and on the current NIMH aging research portfolio, with highlights of examples and opportunities for future research.
2. Staff from NIA presented on the NIA research portfolio and discussed past and future initiatives.
3. Dr. Richard Hodes, Director of NIA, attended the Workgroup's update to the NIMH Council and addressed the Council on progress in aging and mental health research.⁸

○ BACKGROUND REPORTS REVIEWED

1. The NIMH Aging Research Consortium's report, "Late-Life Mental Illness at the National Institute of Mental Health: An Analysis of Fiscal Year (FY) 2000 Grants, Contracts, and Intramural Research Projects"⁹
2. Abstracts of the NIMH FY 2002 aging portfolio

⁸ See http://www.nimh.nih.gov/council/cnclmins_5-03.pdf.

⁹ Report available at <http://www.nimh.nih.gov/aging/agingreportFY2000.pdf>.

3. NIMH's and other NIH Institutes' portfolios in aging research
4. Council's recent reports:
 - "Blueprint for Change: Research on Child and Adolescent Mental Health"¹⁰
 - "Racial/Ethnic Diversity in Mental Health Research Careers: An Investment in America's Future"¹¹
 - "Translating Behavioral Science into Action: Report of the National Advisory Mental Health Council"¹²
5. Relevant consensus statements:
 - Depression and Bipolar Support Alliance Consensus Statement on the Unmet Needs in Diagnosis and Treatment of Mood Disorders in Late Life¹³
 - Institute of Medicine's report, "Reducing Suicide: A National Imperative"¹⁴
6. The variety of programs at NIA targeted at expanding aging research; selected examples include:
 - Alzheimer's Disease Centers: NIA funds 29 centers where investigators conduct basic, clinical, and behavioral research and train scientists and health care providers. The National Alzheimer's Coordinating Center (see <http://www.alz.washington.edu>) coordinates data collection and fosters research collaboration among the centers.
 - Resource Centers and Coordinating Center for Minority Aging Research (RFA-AG-02-004).
 - Human Specimen Repository (see <http://www.nia.nih.gov/research/repository.asp>).
 - Baltimore Longitudinal Study of Aging: America's longest-running scientific study of human aging (see <http://www.grc.nia.nih.gov/branches/blsa/blsa.htm>).
 - Health ABC Study: This study was designed to characterize the extent of change in body composition in older men and women, to identify clinical conditions accelerating these changes, and to examine the health impact of these changes on strength, endurance, disability, and weight-related diseases of old age (see http://www.nia.nih.gov/research/repository/health_abc_description.htm).
 - Claude D. Pepper Older Americans Independence Centers: These centers investigate a range of topics in aging research and have a special mission to bring scientists from all disciplines into aging research and train the next

¹⁰ Report available at <http://www.nimh.nih.gov/childhp/councildesc.cfm>.

¹¹ Report available at <http://www.nimh.nih.gov/council/diversity.pdf>.

¹² Report available at <http://www.nimh.nih.gov/tbsia/tbsiatoc.cfm>.

¹³ Charney, D.S., Reynolds, C.F. III, Lewis, L., Lebowitz, B.D., et al. "Depression and Bipolar Support Alliance consensus statement on the unmet needs in diagnosis and treatment of mood disorders in late life." *Archives of General Psychiatry* 60:664-672, 2003.

¹⁴ Goldsmith, SK, Pellmar, AM, & Bunney WE (editors). *Reducing Suicide: A National Imperative* (2002), see <http://books.nap.edu/books/0309083214/html/index.html>.

- generation of investigators in the field (see <http://www.nia.nih.gov/health/pubs/portfolio/html/reducing.htm#focus>).
- The Healthy Brain Project,¹⁵ a useful example of multi-Institute collaboration at NIH, providing opportunities to pool data across Institutes and to use epidemiological data to better inform the goals and design of clinical trials, including the testing of preventive interventions.
7. Funding initiatives at the Health Resources and Services Administration (HRSA). Selected initiatives include:
- Geriatric Education Centers: As noted on the HRSA Web page (see <http://bhpr.hrsa.gov/interdisciplinary/gec.html>), this program provides grants to accredited health professions schools that train physician assistants and schools of allied health. Since 1985, 375,000 health professionals have received training in geriatrics through the Centers.
 - Geriatrics Faculty Training for Physicians, Dentists and Behavioral Mental Health Professionals: This program provides grants that support fellowships and other training efforts that assist health professionals who plan to teach geriatrics (see <http://bhpr.hrsa.gov/interdisciplinary/faculty.html>).
 - Geriatric Academic Career Award Program: The awards support career development of geriatricians in junior faculty positions who are committed to academic careers teaching clinical geriatrics. As noted on the HRSA Web site (see <http://bhpr.hrsa.gov/interdisciplinary/gaca.html>), the program was established by Congress in the Health Professions Partnership Act of 1998.

WORKGROUP FINDINGS

○ AGING RESEARCH SUPPORT AT NIMH AND NIH

The Workgroup received information on NIMH's support for aging research. For FY 2002, NIMH dedicated 8.5 percent of its research budget to support studies of aging. Total funding was approximately \$106 million, including support provided via grants, contracts, and studies at the Intramural Research Program (IRP) (see Table 1). This figure represents a 7 percent (\$7.0 million) increase in funding over the prior fiscal year. In terms of the percentage of its total research budget allocated to aging research, NIMH ranked seventh among 23 Institutes and Centers in its support for aging research, with NIA providing the highest percentage of support (99.9 percent), followed by the National Center for Complementary and Alternative Medicine (30.6 percent), the National Eye Institute (19.8 percent), the National Institute of Nursing Research (15.2 percent), the National Institute of Neurological Disorders and Stroke (12.1 percent), and the National Institute of Arthritis and

¹⁵See <http://trans.nih.gov/HBI/HBPindex.htm>.

Musculoskeletal and Skin Diseases (12.0 percent). Overall, the NIH Institutes and Centers, excluding NIA, devoted an average of 4.6 percent of their research budgets to aging research.

○ **SETTING THE MARK**

NIMH is clearly above the average in terms of investment in aging research across the NIH Institutes, though this is but one measure of sufficiency. The Workgroup also wanted to assess how NIMH was investing relative to the perceived public health need and scientific opportunity with the goal of ensuring a wise and equitable investment for the future. To do so, some reference point or comparison portfolio for understanding the NIMH's investments was needed.

The Workgroup decided that a helpful reference point would be the support patterns and the research development strategies for the NIMH child and adolescent research portfolio. These patterns and strategies were outlined in the 2001 Council report "Blueprint for Change: Research on Child and Adolescent Mental Health,"¹⁶ which contained a careful analysis of the child and adolescent research portfolio and recommendations to address some of the same research barriers that face geriatric research. The Workgroup felt that this report was particularly germane given that sufficient time had passed since the report was written to assess the effectiveness of some of its recommendations.

The child and aging populations comprise similar proportions of the total U.S. population, and both have similar rates of mental illness—children and adolescents (ages 17 years and younger) make up 26 percent of the total U.S. population and older Americans (ages 55 years and older) comprise 21 percent of the population.¹⁷ In terms of rates of mental illness among these age groups, the Methodology for Epidemiology of Mental Disorders in Children and Adolescents Study estimated that almost 21 percent of U.S. children ages 9-17 had a diagnosable mental or addictive disorder associated with at least minimum impairment.¹⁸ Data from the Epidemiological Catchment Area study show that almost 20 percent of adults age 55 and older experience specific mental disorders that are not part of "normal" aging.¹⁹ Further, each area has a separate Institute at NIH dedicated to research on these populations [(i.e., NIA and National Institute of Child Health and Human Development (NICHD)]. NIMH must define its unique role relative to and in conjunction with these other Institutes.

¹⁶ Report available at <http://www.nimh.nih.gov/child/blueprin.pdf>.

¹⁷ U.S. Census Bureau. National Population Projections, available at <http://www.census.gov/population/www/projections/natsum-T3.html>.

¹⁸ When diagnostic criteria required the presence of significant functional impairment, the estimate dropped to 11 percent (Shaffer, D., Fisher, P., Dulcan, M.K., Davies, M., Piacentini, J., Schwab-Stone, M.E., Lahey, B.B., Bourdon, K., Jensen, P.S., Bird, H.R., Canino, G., and Regier, D.A. "The NIMH Diagnostic Interview Schedule for Children Version 2.3 (DISC-2.3): Description, Acceptability, Prevalence Rates, and Performance in the MECA Study." *Journal of the American Academy of Child and Adolescent Psychiatry* 35(7):865-877, 1996).

¹⁹ Department of Health and Human Services. *Mental Health: A Report of the Surgeon General*, available at <http://www.surgeongeneral.gov/library/mentalhealth/home.html>.

The child and adolescent research portfolio offers an instructive comparison. Table 2 indicates that in FY 2002, NIMH supported 246 aging research and training grants at a level of \$90.25 million, compared with 1,000 grants at a level of \$357.77 million in the child area—a ratio of approximately 1:4 aging to child grants.²⁰

In addition to funding research projects, NIMH supports career development activities, providing salary support so that investigators can devote themselves to research. In terms of support for aging and child researchers through Research Career Development Awards, support for child researchers far exceeded that for aging researchers (see Table 3). Of the total number of career grants awarded by NIMH during FY 2002 (N=445), 9.4 percent (n=42) were awarded in the aging area compared with 34.6 percent (n=154) in the child area. The pattern was similar with fellowships: 4.3 percent (n=16) in the aging area compared with 22.8 percent (n=84) in the child area.

Of special concern to the Workgroup were data on the Level 1 Career Awards in the aging area. These career awards are for junior investigators, which affords additional mentoring in a research area. Although there has been considerable growth in the number of funded Level 1 Career Awards across NIMH, moving from 32 awards in FY 1997 to 87 awards in FY 2002 (see Figure 1), the number of funded aging awards has remained low over the past 6 fiscal years, ranging from 4 awardees in FY 1997 to 7 awardees in FY 2002 (see Figure 2). It is important to note that the number of Level 1 career applications in the aging area also has been very low, ranging from 7 applications in FY 1997 to 20 in FY 2002, despite a high likelihood of being funded. This trend represents a major threat to the Nation's capacity to do the research necessary to discover, improve, test, and disseminate treatments for mental illnesses in old age.

The situation has been quite different in the child area (see Figure 3). Although the likelihood of funding for Level 1 Career Awards in the child area is similar to that for the aging area, the number of submissions for child Level 1 Career Awards has significantly exceeded the number of submissions in aging. That is, submissions in the child area have gone from 14 submissions in FY 1997 to 73 submissions in FY 2002, with the largest increase between FY 1999 and FY 2000. The Workgroup saw this surge as the effect of the RFA issued in FY 1999 (MH99-002: Research Career Development in Mental Disorders of Children, see <http://grants1.nih.gov/grants/guide/rfa-files/RFA-MH-99-002.html>).

The pattern for training grants is similar to that for career awards, with many more awards in the child area as compared with the aging area. As shown in Table 4, there were considerably more training grants awarded in the child area than in the aging area (a ratio of about 4:1 child to aging training grants).

²⁰Figures do not include support provided via contracts or at the NIMH Intramural Research Program.

- **EXPLORING THE FACTORS RELATED TO THE PAUCITY OF GERIATRIC AWARDS**

The small number and percentage of geriatric grants are troubling, and the Workgroup set about examining the source of the problem. The route from submitting an application to receiving funding is difficult, and the initial concern was that too many ideas were being lost in the review and funding process. This concern was not warranted; as discussed below, once an application in geriatrics is received, its chance of funding is as good or better than applications in other programmatic areas. Rather, the problem appears to be that not enough geriatric applications are submitted.

Interestingly, aging-related applications tended to score well in comparison with applications assigned to several other programs (see Table 5). That is, when comparing the applications considered at four consecutive Council meetings that occurred from May 2002 to May 2003, the percent of fundable aging applications (“fundable” is defined as applications scoring at the 20th percentile or better, or for those applications not percentiled, with a priority score of 175 or better) was comparable to that for the three comparison groups of applications, with aging applications outscoring their counterparts in the developmental risk and clinical science programs. However, the number of submitted applications in aging was far below the number of submitted applications in the other programmatic areas.

Delving into this submission problem even further, the Workgroup wondered about the likelihood of funding for aging applications submitted by new investigators. But as seen in Table 6 and consistent with the pattern noted above, aging applications by new investigators scored better, in fact, than applications from new principal investigators in other programmatic areas. However, as was the case with all aging applications, there were significantly fewer aging applications submitted by new investigators as compared to applications submitted in other program areas.

Concerns over disadvantaged funding were dismissed, but there remained a question about the qualification of peer reviewers on review committees. The low numbers of geriatric awards may have resulted from a bias or lack of expertise in the review groups. The Workgroup considered the adequacy of the peer review of aging R01 applications (see Table 7). Sixty-eight R01 applications reviewed during FY 2001 were selected for analysis on the basis of having “aging” or related keywords in their titles; these were assigned to 28 different Initial Review Groups (IRGs) or Special Emphasis Panels (SEPs), depending on the focus of the application. Complete reviewer rosters were examined for those IRGs or SEPs that reviewed three or more of the selected R01 applications. Each reviewer was classified according to whether or not the bulk of his/her research publications for the prior 3 years dealt with the elderly or aging issues. Reviewers whose research was exclusively or almost exclusively on aging issues were categorized as having a “primary interest.” Reviewers who had a clear non-gerontology specialty area (e.g., imaging or statistics) but had published several (2-4) papers in their area of interest

that were devoted to elderly populations were categorized as having a “secondary interest.” Based on these criteria, the six IRGs/SEPs that evaluated three or more of the selected aging R01 applications were found to have reviewers with adequate aging expertise.

○ **STAFFING PATTERNS IN AGING AT NIMH**

NIMH established the Aging Research Consortium in January 2002. The Consortium’s mission is to:

- Stimulate research on mental health and mental illness to benefit older adults.
- Maintain an infrastructure to better coordinate aging research throughout the Institute.
- Provide a linkage to the Institute for researchers, advocates, and the public.
- Advance research training for the study of late-life mental disorders.
- Serve as a liaison with other NIH Institutes conducting age-related research.

Areas of research span the full spectrum of the Institute’s interests, including depression, anxiety, Alzheimer’s disease, basic neurobehavioral research, schizophrenia, and suicide. In addition, the Consortium is responsible for coordinating research, encouraging knowledge transfer and clinical application of the findings, and providing research policy leadership.

The Workgroup found the level of commitment demonstrated by the members of the Aging Research Consortium, as well as their understanding of the geriatric portfolio at NIMH, to be extraordinary. Nonetheless, their service is over and above that of their full-time responsibilities. The Workgroup believed there would be significant synergy if these efforts could be coordinated by a full-time aging expert.

○ **SUMMARY OF FINDINGS**

1. NIMH devoted 8.5 percent of its FY 2002 portfolio to aging research, which is a sizable investment and compares favorably to other NIH Institutes. This rate of investment, however, seems unlikely to meet the mental health needs of the growing proportion of older Americans.
2. The NIMH dedicates significantly more of its research budget (all mechanisms) to support studies in the child area as compared to that in aging (a ratio of 4:1 in terms of funding and number of grants). This is true even though the rates of disorder are similar in the two groups and the geriatric segment of the population will be growing dramatically.
3. Overall, there is a need for more geriatric grant applications. There are significantly fewer aging applications submitted than in other substantive areas, and this is true despite the fact that aging applications tend to score as well, if not better, than applications in the comparison program areas. In particular, there is

an alarming dearth of Level 1 Career applicants in the aging area, again despite a high likelihood of funding.

4. Aging R01 applications are being reviewed by peer review panels with adequate expertise in the aging area.
5. The effort in geriatrics at NIMH appears to require a full-time aging expert to coordinate the Institute's portfolio and development activities.
6. NIMH must make a concerted effort to develop new applications in geriatrics, requiring innovative programming, sufficient expert staffing, and coordination within NIMH and with stakeholders.

CHAPTER III

NIMH AGING RESEARCH: VISION AND RECOMMENDATIONS

INTRODUCTION

The Workgroup's extensive review of the NIMH portfolio and staffing (see Chapter II) yielded a clear picture of the Institute's current strengths and areas ready for development. The Workgroup sought to build upon the accomplishments of NIMH and enhance these efforts by identifying successful strategies from other NIMH and NIH programs, as well as seeking opportunities with other Federal agencies and private foundations.

PUBLIC HEALTH AND SCIENTIFIC VISION

As part of its mandate from Dr. Insel and the National Advisory Mental Health Council, the Aging Research Workgroup has articulated the principles of an overall scientific vision to meet the public health needs of older Americans. The following statements are intended to comprise a set of broad, strategic considerations that provide a context for the more specific recommendations that follow, which the Workgroup has developed to help the Institute meet its goals for late-life research. These principles are based upon the work of many individuals, committees, and associations, including but not limited to *Unmet Needs in the Diagnosis and Treatment of Mood Disorders in Later Life*, Depression and Bipolar Support Alliance²¹; *Reducing Suicide: A National Imperative*, Institute of Medicine (2002)²²; the Surgeon General's Report on Mental Health (1999)²³; the President's New Freedom Commission on Mental Health (2003)²⁴; and a research summit held at the University of Pittsburgh in September 2002 sponsored by the American Association for Geriatric Psychiatry, with participants from the NIMH, the Depression and Bipolar Support Alliance, and the National Alliance for the Mentally Ill.

Principle 1: A life-span approach is vital to understanding mental health and illness. A developmental perspective is essential for identifying and addressing the special needs of particular populations across the life cycle. Changes in the life course include varying patterns of comorbidity, developmental disabilities and neurodevelopmental disabilities in early life; substance abuse and multiple disorders in mid-life adulthood; and neurodegenerative physical illnesses in late life. For example, investigating how the presentation, course, and outcome of a mental illness differs between those who had an early and late

²¹ Charney D.S., Reynolds, C.F. III, Lewis, L., Lebowitz, B.D., Sunderland, T., Alexopoulos, G.S., Blazer, D.G., Katz, I.R., Meyers, B.S., Arean, P.A., Borson, S., Brown, C., Bruce, M.L., Callahan, C.M., Charlson, M.E., Conyell, Y., Cuthbert, B.N., Devanand, D.P., Gibson, M.J., Gottlieb, G.L., Krishnan, K.R., Laden, S.K., Lyketsos, C.G., Mulsant, B.H., Niederehe, G., Olin, J.T., Olsin, D.W., Pearson, J., Persky, T., Pollock, B.G., Raetzman, S., Reynolds, M., Salzman, C., Schulz, R., Schwenk, T.L., Scolnick, E., Unutzer, J., Weissman, M.M., and Young, R.C. "Depression and Bipolar Support Alliance Consensus Statement on the Unmet Needs in Diagnosis and Treatment of Mood Disorders in Late Life." *Archives of General Psychiatry*, 60:664-672, 2003.

²² Goldsmith, S.K., Pellmar, A.M., and Bunney W.E. (editors). *Reducing Suicide: A National Imperative*. The National Academies Press, Washington, D.C., 2002, see <http://books.nap.edu/books/0309083214/html/index.html>.

²³ Department of Health and Human Services, Substance Abuse and Mental Health Services Administration, Center for Mental Health Services, National Institutes of Health, National Institute of Mental Health. *Mental Health: A Report of the Surgeon General*, 1999, available at <http://www.surgeongeneral.gov/library/mentalhealth/home.html>.

²⁴ The Commission's final report is available at <http://www.mentalhealthcommission.gov/reports/FinalReport/downloads/downloads.html>.

onset is likely to provide new, important, and clinically useful information with respect to specific risk and protective factors and variability in treatment response across the life cycle.

Principle 2: It is important to understand successful or healthy aging as well as the causes, course, and consequences of mental illnesses in later life. Additional normative data on the mental health of older people are necessary not only to interpret changes in health, functional status, and behavior that accompany mental illness, but also to more deeply understand the transitions from healthy or normative aging into illness and thereby to define rational bases for preventive or early interventions.

Principle 3: Effective preventive interventions in late-life mental illnesses are greatly needed. Preventive interventions should be broadly defined to encompass reductions in new cases (incidence), severity, episode duration, burden of residual symptoms, and consequence of illness, including excess disability, suicide and non-suicide mortality, or progression (conversion) to dementing illness.

Principle 4: Further research on the unique aspects of mental disorders in aging populations—such as age- and illness-related changes in pharmacokinetic and pharmacodynamic processes, cognition, social resources, and medical comorbidities—is needed to understand treatment response variability in old age and to improve the care of older people with mental illnesses. The hallmarks of mental illnesses in old age are their coexistence with multiple medical disorders and the resulting depletion of psychosocial and economic resources.²⁵ Changes in the metabolism, disposition, and impact of psychotropic medications mean that geriatric-specific strategies need development and testing. Simply using conventional treatments in the elderly may be as ill advised as using them for treating children. Cognitive impairments also are a core feature of mental illnesses in old age, yet they require additional focus in intervention studies. The special psychosocial challenges of old age—which may include bereavement, transitions to greater dependency, and decreased flexibility in problem solving—all merit additional study. Further, the needs of depressed suicidal elders have not yet been adequately addressed, although promising leads exist from the PROSPECT and IMPACT studies.^{26 27}

²⁵ Charney D.S., Reynolds, C.F. III, Lewis, L., et al. "Depression and Bipolar Support Alliance Consensus Statement on the Unmet Needs in Diagnosis and Treatment of Mood Disorders in Late Life." *Archives of General Psychiatry*, 60:664-672, 2003.

²⁶ Alexopoulos G.S. and PROSPECT Group. "Interventions for Depressed Elderly Primary Care Patients." *International Journal of Geriatric Psychiatry* 16:553-9, 2001.

²⁷ Unutzer, J., Katon, W., Callahan, C.M., Williams J.W. Jr., Hunkeler, E., Harpole, L., Hoffing, M., Della Penna, R.D., Noel, P.H., Tang, L., Belin, T.R., Oishi, S., Langston, C., for the IMPACT Investigators. "Collaborative Care Management of Late-Life Depression in the Primary Care Setting. A Randomized Controlled Trial." *Journal of the American Medical Association*, 288 (22):2836-2845, 2002.

Principle 5: The aging brain presents unique opportunities for scientific research on mental illness and mental health. The aging brain provides clues to the risk and protective factors that may operate across the life cycle. For example, on average, women have a later onset of schizophrenia when compared to men,²⁸ raising the question of what factors protect some women from the onset of schizophrenia until later in the life cycle. Another intriguing question pertains to a potential lifespan finding in individuals with bipolar disorder: Could there be neuroprotective factors that are associated with this illness or its long-term treatment? Studies of neurocognitive function and the use of the tools of neuropathology could test several intriguing hypotheses that derive from important studies in basic science.²⁹ Also, most older patients with unipolar depression show some level of cognitive impairment.³⁰ Both affective and cognitive disturbances may be associated with a range of neuropathologies including cerebrovascular and neurodegenerative disease.

These examples illustrate a few of the many opportunities provided by the aging brain to understand the pathophysiologies of the brain from a developmental or lifespan perspective. They also illustrate the inseparability of mental and physical health.

Principle 6: The NIMH portfolio of psychogeriatric research must effectively address the need for better prevention and treatment interventions in mental disorders of late life. To meet its mandate to address the Nation's public health needs, NIMH must tailor its research and training mission to address the large gaps in the current knowledge base about the prevention and treatment of severe and persistent mental illnesses in later life. As emphasized by the 2002 report of the NIMH Aging Consortium,³¹ further research into the treatment of elderly suicidal patients, treatment-resistant depressions in old age, bipolar illness in the elderly, late-onset schizophrenia, anxiety disorders, and mood/behavioral disturbances in people with neurodegenerative disorders is greatly needed to reduce the public health burden of mental illnesses in old age, both for individual patients and their caregivers.

Principle 7: Knowledge born of NIMH-sponsored psychogeriatric research must be broadly disseminated to the benefit of all older Americans and their caregivers. Recent studies, such as PROSPECT and IMPACT, have demonstrated that collaborative care models do improve the recognition, treatment, and outcomes of depressive illnesses in older people attending primary care clinics. It is enormously good news that scientifically based

²⁸ Robins, L.N. and Regier, D.A. *Psychiatric Disorders in America*. Free Press, New York, 1991.

²⁹ Chuang, D.M., Chen, R.W., Chalecka-Franaszek, E., Ren, M., Hashimoto, R., Kanai, H., Hough, C., Hiroi, T., and Leeds, P. "Neuroprotective effects of lithium in cultured cells and animal models of diseases." *Bipolar Disorders* 4(2):129-136, 2002.

³⁰ Nebes R.D., Pollock B.G., Houck P.R., Butters M.A., Mulsant B.H., Zmuda M., and Reynolds, C.F. III. "Persistence of Cognitive Impairments in Geriatric Patients Following Treatment: A Randomized, Double-Blind Clinical Trial with Nortriptyline and Paroxetine." *Journal of Psychiatric Research* 37 (2):99-108, 2003.

³¹ The report is available at <http://www.nimh.nih.gov/aging/agingreportFY2000.pdf>.

depression treatment guidelines, such as those formulated by the former Agency on Healthcare Policy and Research,³² can be successfully implemented in general medical settings to help older people. As these works show, the acceptability and credibility of mental health services for older Americans are much enhanced when integrated into primary care.³³

Unfortunately, integrated case management for mental illness in old age is unlikely to be implemented until the factors that affect its adoption are understood. For example, research must determine if a particular intervention can be adapted to be maximally effective in a nursing home or assisted living facility. Studies are needed to determine if beliefs and attitudes in some segments of the geriatric population impact how and whether an intervention will be used. Dissemination and implementation research to address these issues and many others is needed to bridge the gap between clinical research and everyday practice by building a knowledge base about how mental health care information and new practices are transmitted and translated for health care service use in specific settings.

Similarly, an effective intervention is not likely to be sustainable without understanding how financial and structural incentives impede or enable delivery of quality care. The complex web of acute and long-term care services, along with complex reimbursement policies and insurance benefits, require research to understand the implications of these policies and structures for improvement of service delivery throughout the life course.

Additional research should seek to understand why there are disparities in the detection and treatment of mental illness across ethnic groups so that interventions can be culturally appropriate.³⁴ Research is needed, too, to understand how best to maintain functioning in the community among the aged.

Finally, the Workgroup made an effort to determine how to leverage existing resources in order to increase the presence of aging research in the NIMH portfolio. Among the many ideas considered, the Workgroup selected recommendations based on need, impact, and feasibility. These recommendations fell into four categories: (1) organizational changes; (2) developing the pool of geriatrics researchers; (3) providing research support in geriatrics; and (4) staffing needs.

³²For guidelines on the treatment of depression, see U.S. Agency for Health Care Policy and Research. *Depression in Primary Care: Volume 2. Treatment of Major Depression (Clinical Practice Guideline Number 5)*. AHCPR Publication No. 93-0551, April 1993, available at <http://medwebplus.com/obj/5314>.

³³Charney D.S., Reynolds, C.F. III, Lewis, L., et al. "Depression and Bipolar Support Alliance Consensus Statement on the Unmet Needs in Diagnosis and Treatment of Mood Disorders in Late Life." *Archives of General Psychiatry*, 60:664-672, 2003.

³⁴Ruiz, P. "Issues in the psychiatric care of Hispanics." *Psychiatric Services*, 48:539-540, 1997.

WORKGROUP RECOMMENDATIONS

○ BUILDING THE GERIATRIC MENTAL HEALTH RESEARCH PORTFOLIO

Identifying areas of particular promise in mental health geriatrics research for development is easy, as seen in the principles presented in Chapter II of this report. Determining how to prioritize among these areas is a more difficult task. One essential element is fostering researchers' inherent interests in exploring a particular research question and doing so in expert teams. The Workgroup decided that NIMH's best path is to provide the infrastructure to promote the development of interdisciplinary research teams that are formed around investigators' interests and to ensure that rich primary data and samples are efficiently made available to these interested researchers.

Recommendation 1: Issue a Request for Applications (RFA) to establish interdisciplinary networks of basic and clinical researchers to focus on geriatric mental health questions. The Workgroup was impressed by the success of the Behavioral Science and Child Networking RFAs and by the Research Units in Pediatric Psychopharmacology in building novel interdisciplinary teams and believes the geriatrics area would be ripe for such an initiative. Essential to the success of this RFA initiative is preliminary developmental activity that may take 1-2 years to accomplish. To define substantive areas for the anticipated RFA, the Workgroup envisions a series of workshops that would bring together geriatric and other researchers to define the richest substantive areas for the RFAs and initiate the building of interdisciplinary teams. The substantive areas and opportunities, as outlined under the seven principles, are valuable places to begin, but the critical objective is to let researchers identify the research questions that intrigue them and meet this important public health need.

Recommendation 2: Issue a call for administrative supplements to permit the addition of a geriatric sample to current clinical NIMH grants. To meet the treatment and service demands of the growing proportion of older Americans, inclusion of geriatric samples in research is a necessity. Such supplements should be awarded based on the ability of proposed supplements to address treatment and service questions effectively for the elderly and will require geriatric expertise to do so.

Recommendation 3: Establish repositories for efficient use of geriatric resources. In conjunction with NIA and other Institutes, NIMH should expand its efforts in infrastructure support. Just as the NIMH Genetics Initiative provides cell lines from well-defined samples in schizophrenia, Alzheimer's, and bipolar disorders, sharing activities in geriatrics can spark the field and provide a rich resource to attract

researchers into this high-need area. In particular, the Workgroup was interested in seeing:

- A. The NIMH brain banking activities expand collection and distribution of tissues from older brains.
- B. Secondary analyses of data in geriatrics research.
- C. Formation of community-based linkages for research, service, and training in geriatrics in conjunction with Health Resources and Services Administration's programs and private foundations.

○ **RECOMMENDATIONS FOR DEVELOPING GERIATRIC RESEARCHERS**

As presented in the findings section, the number of geriatric applications submitted to NIMH is too low across the board and particularly low in mechanisms directed at developing new researchers. It is worth noting that among applications submitted to NIMH, geriatric applications do as well or better than other NIMH areas in review and funding. The challenge for NIMH seems to be one of renewing interest in the area. The recommendations below deal with attracting new researchers into the field, which is fully related to the subsequent set of recommendations on developing the research portfolio. These sets of recommendations are only separated here for clarity of presentation and are expected to augment mutually the number of researchers and enhance research initiatives.

Recommendation 4: Issue a Request for Applications soliciting geriatric mentored K awards. To cultivate the field, NIMH must proactively recruit new researchers into mental health geriatric research. Although there is a clear need for recruiting established researchers into geriatrics as well as new researchers, the Workgroup determined that the latter would have the greatest long-term benefit.

Recommendation 5: Promote the availability of the NIH Loan Repayment Program.³⁵ The Workgroup felt that the first years of the NIH Loan Repayment Program have been a helpful retention tool for clinical researchers. By more actively promoting the availability of this program among students, the NIH Loan Repayment Program can become an effective recruitment tool as well. In conjunction with NIA and other Institutes, thought should be given to including additional language about geriatric research or perhaps paralleling the separate pediatric notice with a separate geriatric notice.

³⁵ See <http://www.lrp.nih.gov>.

Recommendation 6: Establish an NIMH geriatrics supplement program, allowing a current NIMH grantee to add an individual to undertake research in geriatrics. Just as NIMH has invested heavily in the NIH-wide minority, re-entry, and disability supplement programs, a similar investment in geriatrics should be considered. The NIMH geriatrics supplement should focus on recruiting new individuals into geriatrics mental health research.

Recommendation 7: Convene professional associations, educators, and credentialing authorities to foster the development of training models that provide exposure to geriatrics research. This is another critical issue for NIMH to address in conjunction with NIA and other Institutes. Current clinical training and service demands all too often crowd out opportunities for undertaking research. The Workgroup argued that exposure to geriatric research was the best recruitment and retention tool and hoped that more could be included in training programs. To learn more about what attracts new scientists into geriatrics, the meeting should consider the merits of developing and fielding a survey of students to identify salient decision factors in determining career paths into and out of geriatrics research. The results of such a survey can inform future recruitment and retention efforts.

○ ORGANIZATIONAL RECOMMENDATIONS

The NIMH geriatrics portfolio would benefit from an organizational structure that provides a focal point for coordinating NIMH's effort within the Institute and across NIH and other Federal agencies, as well as with private and international efforts. Although the Aging Research Consortium has been an important avenue for coordination, the addition of a full-time staff person dedicated to overseeing the Institute's geriatric portfolio would greatly enhance the Institute's effort. Regular reports to Council and to the field on progress in implementing these recommendations will be critical.

Recommendation 8: Establish a focal point within NIMH to oversee and to promote the aging portfolio. The Institute should create a new position of Associate Director for Aging Research in the Director's Office. This senior geriatrics expert will direct the Aging Research Consortium as well as actively engage other Federal and private entities. As the aging portfolio grows, it is likely that geriatric programs within existing branches will need to be formed. Staff expertise in aging research will need to be increased, and one or more aging branches may be required.

Recommendation 9: Reinvigorate collaboration across NIH by joining with NIA in reconstituting the NIH-wide Aging Coordinating Committee. As seen in the resources committed across NIH, many Institutes are actively working in aging-related research. By developing

efforts together, the expertise and resources across NIH can be most efficiently deployed.

- **NIMH STAFFING NEEDS**

Recommendation 10: The level of geriatric expertise among the NIMH staff should be enhanced through training. The workings of the NIMH Aging Research Consortium demonstrate the interest and commitment among the staff to geriatrics research. The members asked for additional training in geriatrics for interested members of the Consortium and around the Institute. Some staff members have aging or geriatric projects in their portfolio but may not have sufficient experience in this area.

Recommendation 11: NIMH should continue to support the Aging Research Consortium's activities of coordination and promulgation of NIMH's geriatric research interests. The Workgroup thought that the active involvement of Consortium members at professional meetings was an essential element of attracting more researchers into mental health geriatrics research.

SUMMARY

The scientific agenda for mental health and aging research should encompass the acquisition of additional normative data to understand the vitality and resilience of healthy aging, as well as the causes, course, and consequences of mental illnesses in old age. This agenda, accomplished in conjunction with the other NIH Institutes and stakeholders, should embrace research on preventive interventions and deepen the understanding of age-dependent changes in treatment-relevant factors such as pharmacokinetic and pharmacodynamic variables, cognition, psychosocial and economic resources, and medical comorbidities. All are important to understanding treatment response variability in old age mental illnesses and essential to creating, testing, and disseminating better treatment. The NIMH research agenda also should recognize that the aging brain presents unique opportunities for scientific research in mental health, resiliency and vitality in old age, and mental illnesses of later life. Additional disease-focused research should be supported, including research on dissemination and uptake of evidence-based practices, to ensure that older Americans and their families benefit from the NIMH research mission.

APPENDIX A
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Table 1

**National Institutes Of Health
Aging Research**

Dollars in Thousands

	FY 2002 Actual		
	Total	Aging Research	Aging as % of Total
NCI – Cancer	4,176,709	140,403	3.4%
NHLBI – Heart.....	2,569,885	89,736	3.5%
NIDCR – Dental	342,293	14,353	4.2%
NIDDK – Diabetes.....	1,463,560	101,000	6.9%
NINDS – Neurology	1,325,232	160,608	12.1%
NIAID – Allergy	2,528,279	79,487	3.1%
NIGMS – General Medical	1,722,936	0	0.0%
NICHHD – Child	1,110,472	7,696	0.7%
NEI – Eye.....	580,085	115,142	19.8%
NIEHS – Environmental	564,086	14,834	2.6%
NIA – Aging.....	891,302	890,816	99.9%
NIAMS – Arthritis	447,763	53,588	12.0%
NIDCD – Deafness	341,306	15,566	4.6%
NIMH – Mental Health.....	1,245,292	106,090	8.5%
NIDA – Drug Abuse	885,759	1,981	0.2%
NIAAA – Alcohol	383,200	5,475	1.4%
NINR – Nursing.....	120,236	18,262	15.2%
NHGRI – Human Genome	428,294	1,068	0.2%
NIBIB – Bioengineering.....	111,740	1,649	1.5%
NCRR – Research Resources	1,010,169	46,272	4.6%
NCCAM – Alternative Medicine	104,338	31,878	30.6%
NCMHD – Minority Health.....	157,393	2,129	1.4%
FIC – Fogarty	56,798	443	0.8%
Subtotal, Institutes & Centers.....	22,567,127	1,898,476	8.4%
NLM – Library	275,792	0	0.0%
OD – Office/Director.....	234,859	1,905	0.8%
B&F – Bldg. & Fac	295,879	0	0.0%
Total, NIH Programs	23,373,657	1,900,381	8.1%
NIH ICs, Excluding NIA.....	21,675,825	1,007,660	4.6%

TABLE 2**FY 2002 AGING AND CHILD
GRANT SUPPORT COMPARISON**

Program	Number of Grants	Percentage of Total Grants	Amount (in millions)	Percentage of Total \$
Aging	246	7.0%	\$ 90.25	9.1%
Child	1,000	28.3%	357.77	35.9%
Other Areas	2,287	64.7%	547.97	55.0%
Total Extramural	3,533	100%	\$ 995.99	100%

TABLE 3**FY 2002 AGING AND CHILD
CAREER AWARDS AND FELLOWSHIP COMPARISONS**

Program	Number of Career Awards	Percentage of Total Career Awards	Number of Fellowships	Percentage of Total Fellowship Awards
Aging	42	9.4%	16	4.3%
Child	154	34.6%	84	22.8%
Other Areas	249	56.0%	269	72.9%
Total Extramural	445	100%	369	100%

Figure 1

Growth Rate- all Level 1 Career Awards

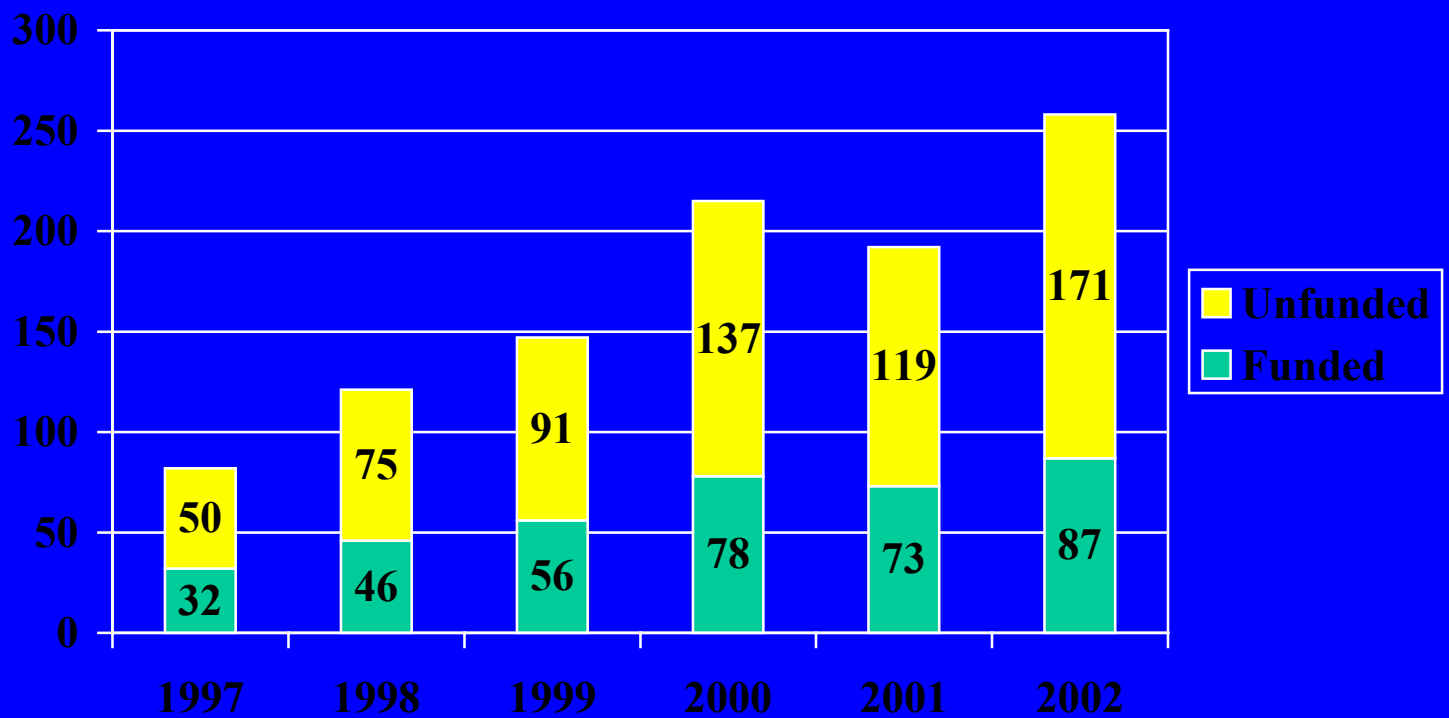


Figure 2

Growth Rate- Aging Level 1 Career Awards

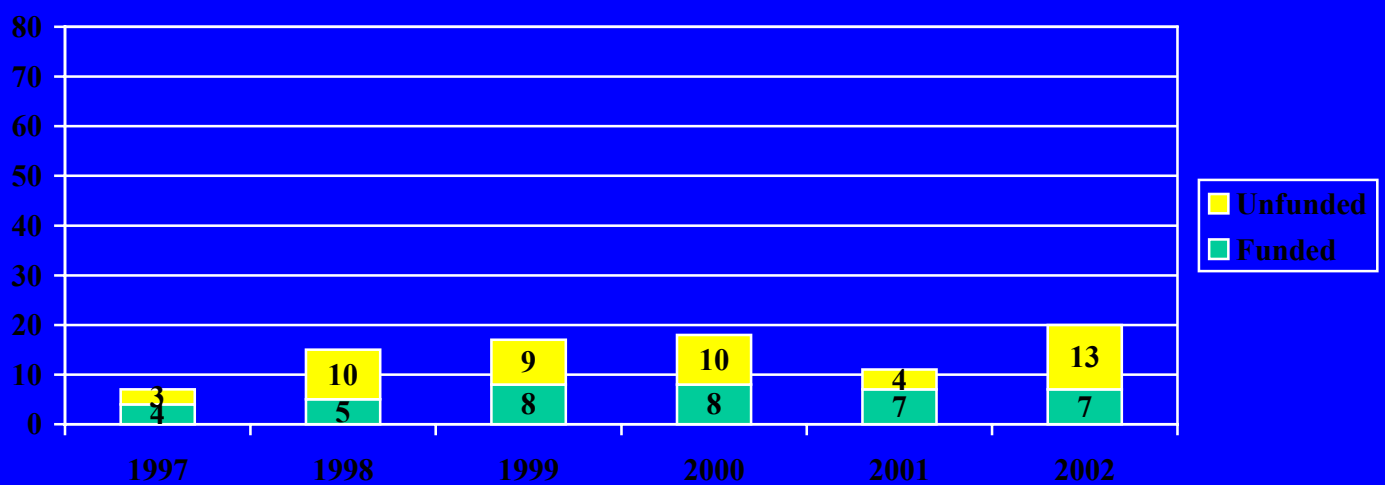
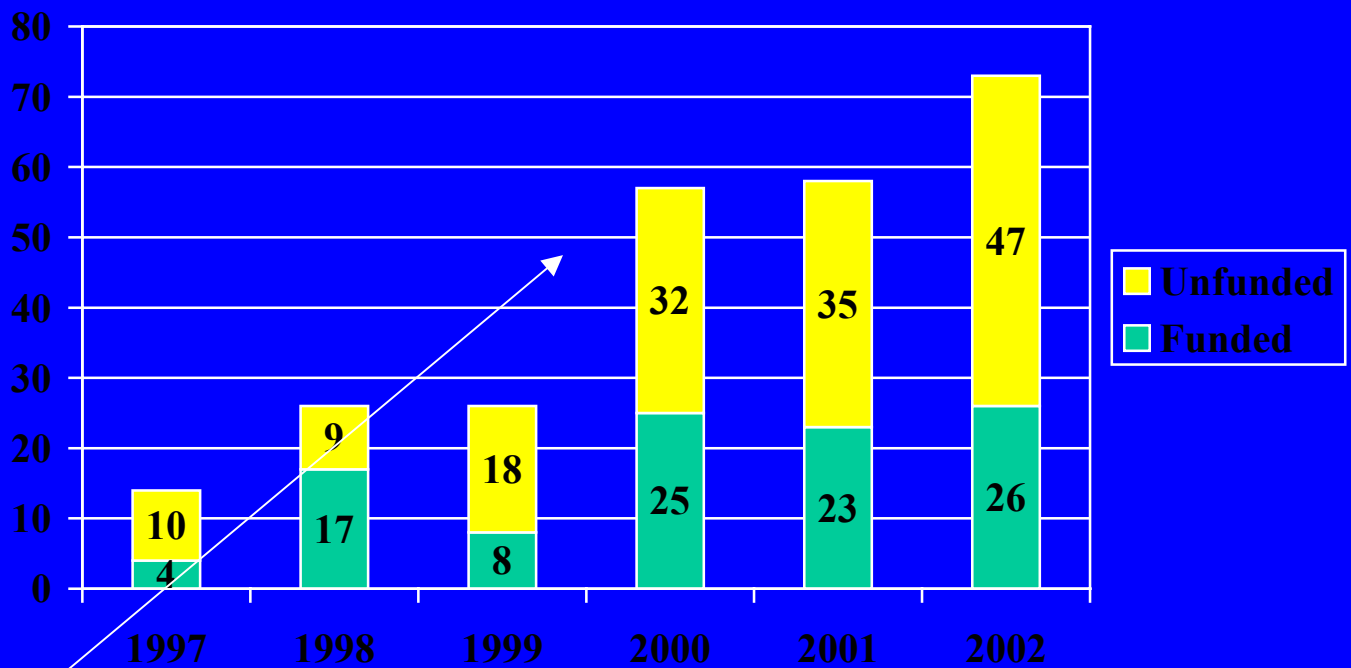


Figure 3

Growth Rate- Child Level 1 Career Awards



Introduction of Child RFA/ Staff added

TABLE 4

**FY 2002 NUMBER OF AGING AND CHILD TRAINING GRANTS
ACROSS ALL NIMH PROGRAMS COMPARISON**

GRANT TYPE	AGING	CHILD
New Grants	0	3
Competing Renewals	1	20
Non-Competing Continuations*	22	73
TOTAL	23	96

*Six grants support both aging and child research trainees.

TABLE 5

**COMPARISON OF PERCENT FUNDED AGING AND CHILD GRANT APPLICATIONS
BY COUNCIL ROUND COMPARISON***

Council Date • Program to which application assigned**	Number of Submitted Applications	Number of Scored Applications	Number of Fundable Applications***	Percent Fundable of Total Number of Submitted Applications	Percent Fundable of Total Number of Scored Applications
May 2002					
• CS***	87	62	22	25%	35%
• CT****	66	58	24	36%	41%
• DP*****	123	86	26	21%	30%
• Aging	44	44	15	34%	34%
October 2002					
• CS	70	50	19	27%	38%
• CT	43	33	15	35%	45%
• DP	81	48	14	17%	35%
• Aging	29	24	11	38%	46%
January 2003					
• CS	65	42	15	23%	36%
• CT	36	21	10	28%	48%
• DP	68	52	20	29%	38%
• Aging	40	35	19	49%	54%
May 2003					
• CS	78	66	26	33%	39%
• CT	49	41	12	25%	29%
• DP	97	72	17	18%	24%
• Aging	56	48	12	21%	25%
TOTAL Across 4 Council Rounds					
• CS	300	220	82	27%	37%
• CT	194	153	61	31%	40%
• DP	369	258	77	21%	30%
• Aging	169	151	57	34%	38%

* Includes research grants, fellowships, and institutional training grants

** Program Codes

CS: Clinical Neuroscience Branch, Division of Neuroscience and Basic Behavioral Science

CT: Child and Adolescent Treatment and Preventive Intervention Research Branch, Division
of Services and Intervention Research

DP: Developmental Psychopathology and Prevention Research Branch, Division of Mental
Disorders, Behavioral Research and AIDS

*** Defined as applications scoring at the 20th percentile or better, or, for those applications not percentiled,
with a priority score of 175 or better

TABLE 6

**PERCENT FUNDED AGING GRANT APPLICATIONS
WITH NEW PRINCIPAL INVESTIGATORS ACROSS PROGRAMMATIC AREAS
BY COUNCIL ROUND COMPARISON***

Council Date • Program to which application assigned**	Number of Submitted Applications with new PIs	Percent of Funded Applications with new PI
May 2002		
• CS	20	20%
• CT	12	17%
• DP	50	16%
• Aging	5	20%
October 2002		
• CS	17	12%
• CT	15	33%
• DP	34	9%
• Aging	9	22%
January 2003		
• CS	21	10%
• CT	11	18%
• DP	24	38%
• Aging	10	50%
May 2003		
• CS	20	20%
• CT	18	17%
• DP	39	23%
• Aging	19	16%
TOTAL Across 4 Council Rounds		
• CS	78	15%
• CT	56	21%
• DP	147	20%
• Aging	43	26%

* Includes research grants, fellowships, and institutional training grants

** Program Codes

CS: Clinical Neuroscience Branch, Division of Neuroscience and Basic Behavioral Science

CT: Child and Adolescent Treatment and Preventive Intervention Research Branch, Division of Services and Intervention Research

DP: Developmental Psychopathology and Prevention Research Branch, Division of Mental Disorders, Behavioral Research and AIDS

TABLE 7

**AGING EXPERTISE ON INITIAL REVIEW GROUPS (IRGs)
A COMPARISON OF IRGs EVALUATING AGING APPLICATIONS DURING
FISCAL YEAR 2001**

Initial Review Group (IRG)	Number of Aging Applications	Total Number of Reviewers	Reviews with Primary or Secondary Interest in Aging Number (%)
BBBP-5	9	46	8 (17%)
ITV-D	9	71	15 (21%)
SRV-C	7	60	6 (10%)
BBBP-4	5	42	13 (31%)
BDCN-6	3*	42	9 (21%)
RPHB-2	3*	40	4 (10%)

*Total over 2 cycles (there are three review cycles each fiscal year)

BBBP-5: Biobehavioral and Behavioral Processes 5 at CSR

ITV-D: Interventions at NIMH

SRV-C: Services at NIMH

BBBP-4: Biobehavioral and Behavioral Processes 4 at CSR

BDCN-6: Brain Disorders and Clinical Neuroscience 6 at CSR

RPHB-2: Risk, Prevention and Health Behavior 2 at CSR



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